

1 What is claimed is:

2 1. A supporting device for an integrated circuit package having a column grid array
3 interconnection with a printed circuit board, said supporting device comprising:

4 a shim that is inserted between the integrated circuit package and the printed
5 circuit board,

6 wherein said shim is mechanically and removably fastened to the printed circuit
7 board.

8 2. The supporting device of claim 1, wherein the shim comprises an extrusion that is
9 inserted between the integrated circuit package and the printed circuit board, and a base
10 that comprises a fastening means to secure the shim to the printed circuit board.

11 3. The supporting device of claim 1, wherein the base and the extrusion are shaped
12 to prevent the extrusion from coming into contact with a solder column of the
13 integrated circuit package.

14 4. The supporting device of claim 3, wherein the extrusion is designed to provide a
15 gap between the extrusion and the integrated circuit package immediately after the
16 installation of the supporting device.

17 5. The supporting device of claim 1, wherein the supporting device is installed on a
18 corner of the integrated circuit package.

19 6. The supporting device of claim 5, wherein the supporting device has a Y shape.

20 7. The supporting device of claim 1, wherein the supporting device is made of a
21 material having a coefficient of thermal expansion that matches coefficients of thermal
22 expansion of solder columns of the integrated circuit package.

23 8. The supporting device of claim 2, wherein the fastenining means is a screw.

24 9. The supporting device of claim 2, wherein the fastenining means is a dimple.

25 10. A method for mechanically supporting an integrated circuit package having a
26 column grid array interconnection with a printed circuit board, said method comprising
27 the steps of:

28 inserting one or more supporting devices between the integrated circuit package
29 and the printed circuit board; and

30 mechanically and removably fastening the one or more supporting devices to the
31 printed circuit board.

32 11. The method of claim 10, wherein the inserting step inserts one or more supporting
33 devices between the integrated circuit package and the printed circuit board after the
34 integrated circuit package is solder attached to the printed circuit board.

- 1 12. The method of claim 11, wherein the inserting step positions the one or more
2 supporting devices so that there is a gap between a top surface of the one or more
3 supporting devices and an under surface of the integrated circuit package.
- 4 13. The method of claim 10, wherein the fastening step fastens the one or more
5 supporting devices on one or more corners of the integrated circuit package.
- 6 14. The method of claim 10, wherein the fastening step fastens the one or more
7 supporting devices to the printed circuit board by screws.
- 8 15. The method of claim 10, wherein the fastening step fastens the one or more
9 supporting devices to the printed circuit board by dimples.